

WTI-2332-FT Telephone Interface

24VAC POWER
BLUE
WHITE

To Enable Password Protection
Press and Hold,
then press Reset button once,
keep holding till LED goes ON.

To Disable Password Protection
Press and Hold,
then press Reset button once,
keep holding till LED goes ON.

Whichever LED is ON indicates
password protection state.

Group ON/OFF
Use to test.
Button actuates
a preprogrammed
relay group.
Relay Group #

ON=Multiple Commands / Call
OFF=Single Command / Call
Tones allowed
during voice prompts
ON=Relay Group Control
OFF=Relay Control

Pressing Reset button
will cause a software
reboot of the WTI-2332.

Device Status
Blinking= OK

Reset

Ring **On Hook**

**WTI-2332-FT
Telephone Interface**

Service

Wink

**Lonworks
FTT-10 Signal**
EARTH
NET B
NET A

**Telephone
Line**

USB
LED ON
when USB
connected

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Instruction Manual



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WTI-2332-FT Telephone Interface

The WTI-2332-FT allows telephone access to a LonWorks lighting control network or to a Douglas MC-6000 lighting control network from a standard touch tone phone. The WTI-2332-FT is mounted in the relay panel and is connected to the network data signal. The telephone connects to the modem jack on the WTI-2332-FT. The user then dials into the WTI-2332-FT line and, using simple key commands, can monitor the status of any of the relay groups, or individual relays, within the network or turn them ON or OFF from the telephone.

Enable Password Button & LED

- Press and hold, then press Reset button to enable password protection. Keep holding until LED is ON, indicating password protection is active.

Disable Password Button & LED

- Press and hold, then press Reset button to disable password protection. Keep holding until LED is ON, indicating password protection is inactive.

Power Indicator LED

- Flashes when unit is receiving power.

Reset Button

- Press and hold at startup to restore defaults.

Power Indicator LED

- Flashes when a call is being sent.

Telephone Online Indicator LED

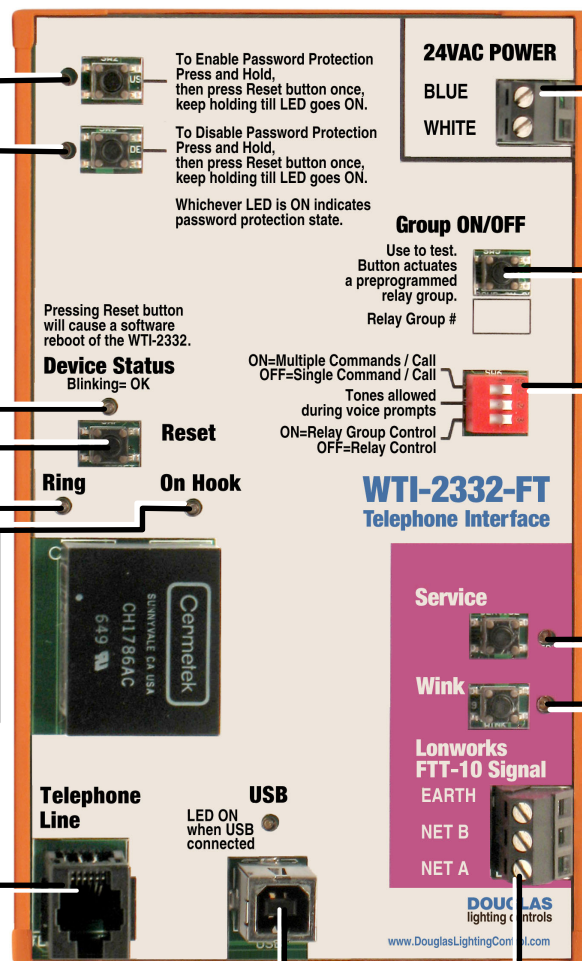
- ON when modem is active.

RJ11 Jack

- Connect the telephone line here.

USB Port & LED

- Connect the USB from a pc for using the pc hyperterminal to configure the unit.
- LED flashes when pc is connected and a signal is being transmitted.



24VAC POWER

BLUE
WHITE

24V Power Terminals

- Connect to 24V transformer in panel.

Group Test Button

- Press to toggle preselected (during system configuration) LonWorks group ON and OFF.

DIP Switches

- Factory setting is all 3 switches in ON (right) position:



- #1 ON (single command mode: one command per session)
- #1 OFF (multiple command mode: more than one command per session)
- #2 ON (can enter command before voice prompt ends)
- #2 OFF (cannot enter command until voice prompt ends)
- #3 ON (default menu is relay groups activated).
- #3 OFF (default menu is individual relays activated).

Service Button & LED

- Press the button to identify unit to network for diagnosis.
- Flashing LED indicates defective unit.

Wink Button & LED

- LED flashes when a network Wink command is received.
- Press the button to clear Wink command.

Data Signal Connections

- Connect LonWorks network data signal here.
- For LonWorks networks: data signal is FTT10 (78kbs), wiring is 16AWG twisted pair, non-polarized unshielded striated or solid.
- For MC-6000 networks: connect to LonWorks signal input terminals on MC-6210N-GTW card.

WTI-2332-FT Telephone Interface

Password Enable Button & LED

- To activate password protection, press and hold button, then press Reset button. Keep holding until LED comes ON.
- LED is ON when password protection is activated.

Password Disable Button & LED

- to disable password protection press and hold button, then press Reset button. Keep holding till LED comes ON.
- LED is ON when password protection is disabled.

Power Indicator LED

- Flashes when unit is receiving power.

Reset Button

- Press and hold at startup to restore defaults.

Ring LED

- Flashes when a call is being sent.

Telephone Online Indicator LED

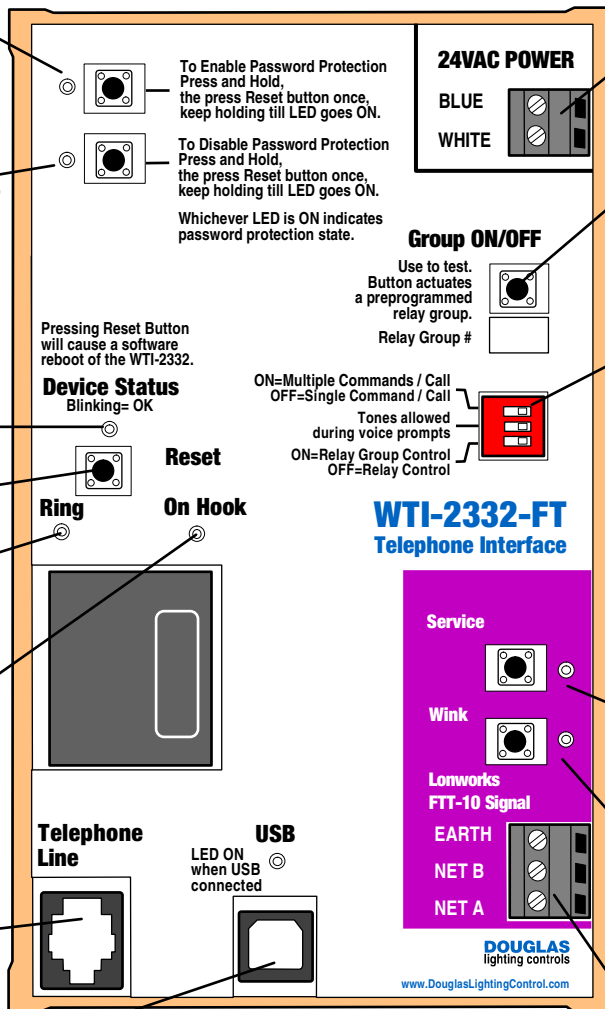
- On when the modem is active.

RJ11 Jack

- Connect the telephone line here.

USB Port and LED

- Connect the USB from a pc here for using the pc's hyperterminal to configure the unit.
- LED flashes when a pc is connected and a signal is being transmitted.



Power Terminals

- Connected to 25VAC/120VAC transformer.

Test Button

- Press button to toggle pre-selected (during system configuration) LonWorks group ON and OFF.



DIP Switches

- Factory setting is all switches in ON (right) position.
- 1 ON = single command mode.
- 2 ON = command can be started before voice prompt ends.
- 3 ON = default menu is relay groups activated.
- 1 OFF = multiple command mode.
- 2 OFF = command cannot be started until voice prompt ends.
- 3 OFF = default menu is individual relays activated.

Service LED and Pin

- LED: flashes when unit is malfunctioning.
- Pin: press to identify unit to network for diagnosis.

Wink LED and Pin

- LED: flashes when network Wink command received.
- Pin: press to clear Wink command.

Data Signal Terminals

- Connect network data signal here.
- For LonWorks networks: data signal is FTT10 (78kbs), wiring is 16AWG twisted pair, non-polarized unshielded striated or solid.
- For MC-6000 networks: connect to the LonWorks signal input terminals on the MC-6210N-GTW card.

Specifications

Connections

- Power:
24VAC / 100mA
- LonWorks Data Signal
FTT-10 (78 kbs) standard LonTalk data signal.
Wiring is 16AWG twisted pair, unshielded cable, stranded or solid conductor.
Connections are polarity insensitive.
Data signal wiring to the panel must be included in the overall network data signal line length calculations.
For a Douglas MC-6000 system, the LonWorks data signal connects from the WTI-2332-FT to the LonWorks signal terminals of a MC-6210N-GTW Card. The MC-6210N-GTW Card must have its own address with respect to the MC-6000 system.

- Telephone:
Dedicated telephone line from a touch-tone phone to the RJ11 jack.

Operation

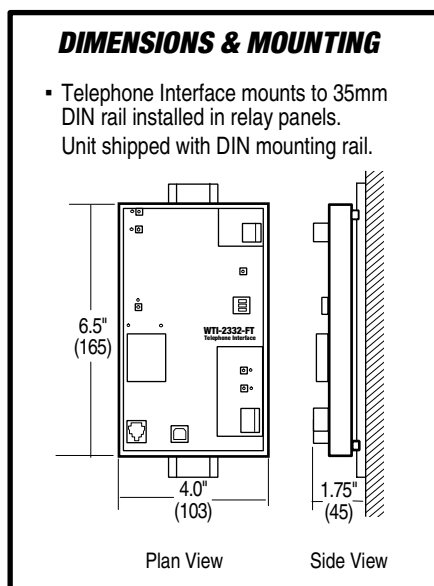
- The WTI-2332-FT is accessed by dialing the telephone number provided by the System Administrator.
- Dialing must be paced and deliberate.
- Upon connection, a password can be required, and is entered with the telephone keypad.
- Each telephone command, entered with the telephone keypad, consists of the function code (ON, OFF or status), group number (or individual relay number) and the initiation code ('#').
- Voice prompts are provided by the system.

Network Technology Specification

- LonWorks® technology.

Environment

- Indoors, stationary, non-vibrating, non-corrosive atmosphere and non-condensing humidity.
- Ambient operating temperature:
0° F to +120° F (-15° to +50° C).



LONWORKS

The WTI-2332-FT has been designed to function as part of a LonWorks network.

LONWORKS refers to a technology platform for components used in control networks. A component, to be certified as *LonMark* (meeting the LonWorks standard), must meet the functional standards specified for its device (also called *node*) type. The advantage to this is *interoperability*. That is, in a LonWorks network, a device/node from any manufacturer can be used for performing the function specified for that particular device/node type.

LonWorks nodes generally contain a chip called a *neuron*. The neuron has imbedded software that directs the node in performing its networking functions. The neuron 'listens' for messages from other LonWorks devices/nodes on the network. When it 'hears' a type of message that it is programmed to respond to, it sends a specific type of message in response.

CONFIGURATION

A Douglas W-2000 LonWorks lighting control network consists of devices that are configured to receive/send signals to/from other devices in the network. Each device/node must have an ID and must recognize the IDs of all the other devices on the network so that it can send/receive messages to/from the appropriate devices. Each device is configured to respond in a specific manner to any message it is able to receive.

In a Douglas W-2000 LonWorks network, configuration can be done by an external BAS (building automation system) connected to the network, or by a pc connected by ethernet to a Douglas WNP-2150 Network Manager that is part of the network. Or, it can be done automatically (self-configured) by a Douglas WNX-2624 device within the network that is designated as the Network Manager.

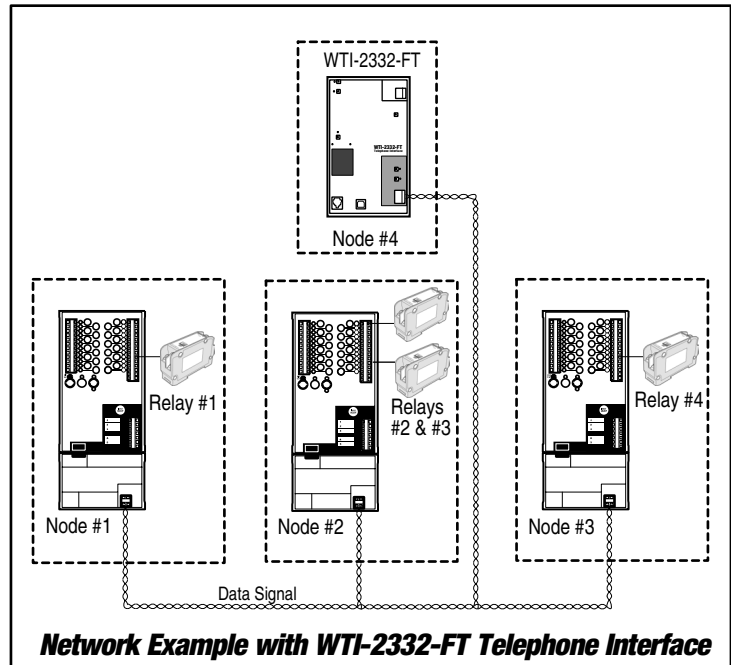
The BAS or Network Manager will assign ID numbers to the devices in the network as well as to each of their switch inputs and will *bind*, or assign, the relay output groups to the appropriate switch inputs.

The BAS or Network Manager will know which node (by its Node ID number) has which switch inputs (by their input ID numbers) and which output relays (by the binding) each of those switch inputs controls. When the system is operating and a switch input is triggered, the BAS or Network Manager will recognize where it is, will recognize which output relays it is to trigger, and will generate a signal to trigger those output relays as a group.

THE WTI-2332-FT TELEPHONE INTERFACE

The WTI-2332-FT Telephone Interface is *LonMark*-compliant and can function as device within a LonWorks network. Once properly connected and configured, it will have a unique node ID.

The function of the the WTI-2332-FT is to allow the operator, who connects to the WTI-2332-FT with a touch-tone phone, to monitor the status of each of the output relay groups bound to the switch inputs throughout the LonWorks network. As well, the WTI-2332-FT will allow the operator to turn any output relay group ON or OFF.



Network Example with WTI-2332-FT Telephone Interface

AN EXAMPLE

An example of a Douglas W-2000 LonWorks Network with a WTI-2332-FT Telephone Interface is shown above. The network consists of three panels, each that contain the WRS-2224 Programmable Relay Scanner/WNX-2624 Network Node, and a fourth panel that contains the WTI-2332-FT Telephone Interface. They are networked with a data signal that is connected to each WNX-2624 and to the input and output of the WTI-2332-FT.

Node ID #'s are assigned to each of the Network Nodes and the Telephone Interface. Output group ID #'s are assigned to all the output relay groups. The output relays assigned to each output group I are bound to its group ID #.

In the example above, an output group consists of four relays. The first relay (relay #1) is connected to an output on the scanner with Node #1. The second and third relays (relays #2 and #3) are connected to outputs on the scanner with Node #2. The fourth relay (relay #4) is connected to an output on the scanner with Node #3.

The configuration recognizes this and assigns an Input ID number (in this example, Output Group # 18) to the switch and binds all four relays to that group number.

When the operator signals the WTI-2332-FT Telephone Interface (Node #4) to turn Group #18 ON or OFF, the WTI-2332-FT transmits that signal to the network and the network will turn the relays that are bound to the Group (relays #1, #2 #3 and #4) ON or OFF accordingly.

To get the WTI-2332-FT up and running:

1. Install the WTI-2332-FT in the relay panel.

Mount in the panel per the diagram on page 3.

2. Connect the network data signal to the WTI-2332-FT.

For a Douglas W-2000 or an external LonWorks network, connect the data signal to the NET A and NET B terminals. Connection are polarity insensitive. Connections are shown on the diagram on page 2. For a MC-6000 network, connect the data signal from NET A and NET B terminals to the LonWorks signal terminals on the MC-6210N-GTW Card within the MC-6000 network. The MC-6210N-GTW Card must have an address with respect to the MC-6000. The MC-6000 network connections are shown on the diagram on page 7.

3. Connect the telephone line to the RJ11 jack.

Connect the dedicated telephone line to the RJ11 jack, as shown on the diagram on page 2. It is recommended that you find out and make note of the dial-in telephone number at this time. Record it in the space provided on page 10 of this manual.

4. Power up the panel.

The Power Indicator LED will flash when the unit is receiving power.

5. Make sure the DIP switch settings are correct.

Factory default is all three switches in the ON position (#1 ON - single command mode, #2 ON- can enter command during voice prompt, #3 ON- *Relay Groups* Menu.) If these settings are not what you wish to use, change them. Refer to the table on page 7.

6. Dial the telephone number on the telephone.

The telephone connected to the modem must be a touch-tone type. If you are not certain of the correct telephone number, check with the Network System Administrator.

If you receive a busy signal, another user is accessing the interface and you will not be able to make a connection. Try again later.

7. Once the telephone connection is made, provide the password using the telephone keypad.

When the connection is made after dial-up, a voice prompt states "Welcome to the lighting control system. Enter your password, followed by the pound key."

Enter the password using the telephone keypad. For instance, if the password is 1,2,3,4 (factory default password), Press 1, 2, 3, 4, #.

Hit the keys slowly and deliberately and you should not start until the voice prompt is finished. This procedure is the same when entering any command or response on the telephone keypad.

When the password is accepted, a voice prompt states "Password accepted."

If the WTI-2332-FT is set for no password, you will not be requested to enter a password. Instead, you will immediately be sent to the *Select Group* or *Select Individual Relay* Menu.

8. Activate, or query the status of, a relay group or an individual relay using the telephone keypad.

If DIP Switch #3 has been set to ON, the *Relay Groups* Menu will now appear. If DIP Switch #3 had been set to OFF, the *Individual Relay* Menu will now appear.

GROUP MENU (you activate output relay groups).

After the system accepts your password a voice prompt will say "Welcome to the Group Menu. Enter '3' for OFF or '6' for ON, followed by the relay number and the pound key."

8. (continued)

Enter the group activation/query command, using the keypad. The sequence is:

- '3' (to turn OFF) or '6' (to turn ON) or '7' (to hear present status)
- group number (1 to 3 digits, 1 to 255)
- '#'

For instance, the key sequence to turn OFF relay group #25 would be '3', '2', '5', '#'.

When the command is received and acted upon, the voice prompt will say "Group is ON" or "Group is OFF" as appropriate.

INDIVIDUAL RELAY MENU (you activate individual relays)

After the system accepts your password a voice prompt will say "Welcome to the Individual Relay Menu. Enter '3' for OFF or '6' for ON, followed by the panel number, relay number and the pound key."

Enter the relay activation/query command, using the keypad. The sequence is:

- '2' (to mask OFF) or '3' (to turn OFF) or '6' (to turn ON) or '7' (to mask ON) or '8' (to turn ON with a Timeout)
- panel number (1 to 3 digits, 5 to 250)
- individual relay number (2 digits, 01 to 64)
- '#'

For instance, the key sequence to turn ON relay #05 in panel #5 would be '6', '5', '0', '5', '#'. Or, the key sequence to turn OFF relay #10 in panel #123 would be '3', '1', '2', '3', '1', '0', '#'.

9. Repeat step 8 to activate or query status of other group(s) or individual relay(s).

Use the same key sequence. For Relay Groups: 3 (turn OFF) or 6 (turn ON) or 7 (query), group number, #. For Individual Relays: 2 (mask OFF) or 3 (turn OFF) or 6 (turn ON) or 7 (mask ON) or 8 (turn ON with timeout), panel number, individual relay number, #.

10. To toggle to the other Menu, press the '4' key.

If you are in the *Group* Menu, where you activate relay groups, and want to go to the *Individual Relay* Menu, where you activate individual relays -or vice versa- press the '4' key, then press '#'. .

Follow the voice prompts and use keyboard commands, exactly as in steps 8 & 9, to activate groups or individual relays using the other Menu.

At any time, you can toggle from one Menu to another by pressing '4', then '#'. .

12. To initiate another type of command, use the appropriate key sequence, as listed on page 6.

Other types of commands include change password and override flick warn. Refer to the table on page 6 for keyboard commands.

13. To terminate the telephone connection, simply hang up.

When you hang up, the controller will automatically terminate the connection and retain all saved information from the commands that were properly entered.

The system will also disconnect the telephone if there are several seconds of inactivity. The system will prompt the user before disconnecting.

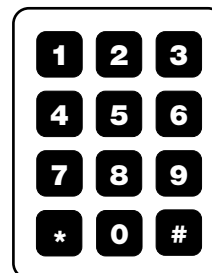
Telephone Keypad Commands

ENTERING COMMANDS USING THE TELEPHONE KEYPAD

You enter commands by pressing on the number keys on the telephone keypad.

You should wait until the voice prompt is completed before starting, then press the keys slowly and deliberately. When your command is accepted, you will hear a voice prompt confirmation or response.

Below is a table that lists the telephone commands that you can use with the WTI-2332-FT.

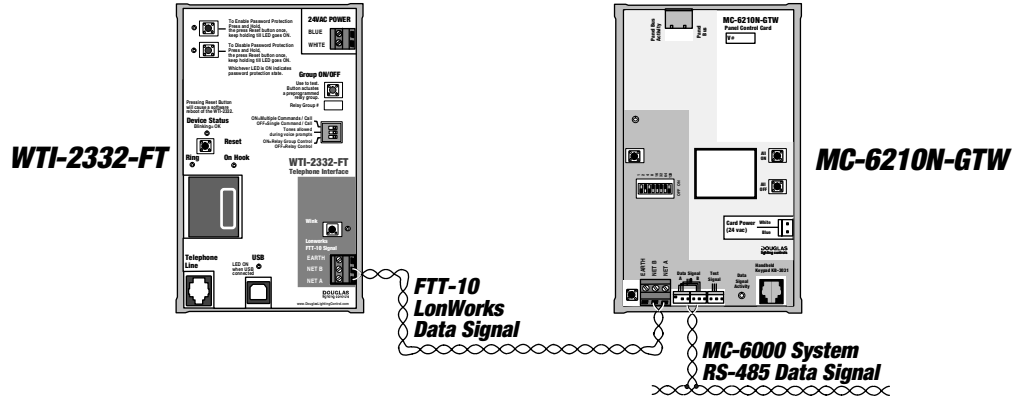


Command	Procedure			
Enter Password	<ol style="list-style-type: none"> 1. (voice prompt says "enter your password...") 2. Enter digits of password, then '#'. For example, if password is 1234, enter '1', '2', '3', '4', '#'. 3. (voice prompt says "password accepted") 			
Enter New Password (note: default is no password)	<ol style="list-style-type: none"> 1. Press '9', then '#'. 2. (voice prompt says "enter your password...") 3. Enter digits (4 to 6) of password, then '#'. For example, if password is 1234, enter '1', '2', '3', '4', '#'. 4. (voice prompt says "re-enter password...") 5. Enter digits of password, then '#'. 6. (voice prompt says "password accepted") 			
Set for No Password	<table border="0"> <tr> <td style="vertical-align: top;"> <ol style="list-style-type: none"> 1. Press '9', then '#'. 2. (voice prompt says "enter your password...") 3. Enter '5', '5', '#'. </td> <td style="vertical-align: middle; text-align: center;">(OR)</td> <td style="vertical-align: top;"> <ol style="list-style-type: none"> 1. Press and hold Disable Password button. 2. While continuing to hold Disable Password button, press Reset button. 3. LED by Disable Password button will ON, indicating default settings are restored, including no password. </td> </tr> </table>	<ol style="list-style-type: none"> 1. Press '9', then '#'. 2. (voice prompt says "enter your password...") 3. Enter '5', '5', '#'. 	(OR)	<ol style="list-style-type: none"> 1. Press and hold Disable Password button. 2. While continuing to hold Disable Password button, press Reset button. 3. LED by Disable Password button will ON, indicating default settings are restored, including no password.
<ol style="list-style-type: none"> 1. Press '9', then '#'. 2. (voice prompt says "enter your password...") 3. Enter '5', '5', '#'. 	(OR)	<ol style="list-style-type: none"> 1. Press and hold Disable Password button. 2. While continuing to hold Disable Password button, press Reset button. 3. LED by Disable Password button will ON, indicating default settings are restored, including no password. 		
Activate or Query Status of Output Relay Group	<ol style="list-style-type: none"> 1. go to Group Menu (default when DIP Switch #3 is ON, or toggle from Individual Relay Menu). 2. (voice prompt says "welcome to the Group Menu...") 3. Enter '3' (if group to be turned OFF) or '6' (if group to be turned ON) or '7' (to query group's status). 4. Enter digits of group number, which can be 1-255 (example: for group #23, enter "2", '3'). 5. Enter '#'. 6. (voice prompt says "group is ON" or "group is OFF", as appropriate) 7. Repeat steps 2-6 to activate other groups. 			
Activate an Individual Relay (generally used with MC-6000 Network)	<ol style="list-style-type: none"> 1. go to Individual Relay Menu (default when DIP Switch #3 is OFF, or toggle from Group Menu). 2. (voice prompt says "welcome to the Individual Relay Menu...") 3. Enter the action: '2' (to unmask relay) or '3' (to turn OFF relay) or '6' (if relay to be turned ON) or '7' (to mask relay) or '8' (to turn relay ON with a Timeout). 4. Enter 1-3 digits of panel number, which can be 5 to 250 (example: for panel #125, enter '1', '2', '5'). 5. Enter 2 digits of relay number, which can be 01 to 64 (examples: for relay #4, enter '0', '4'; for relay #61, enter '6', '1'). 6. Enter '#'. 8. Repeat steps 2-7 to activate other individual relays. 			
Toggle between Group Menu and Individual Relay Menu	<ol style="list-style-type: none"> 1. press '4', then '#'. 2. (voice prompt says "welcome to the (other) Menu.") 			
Disconnect	<ol style="list-style-type: none"> 1. hang up. 			

Connecting to MC-6000 Network / DIP Switches / Emergency Password

CONNECTING TO AN MC-6000 NETWORK

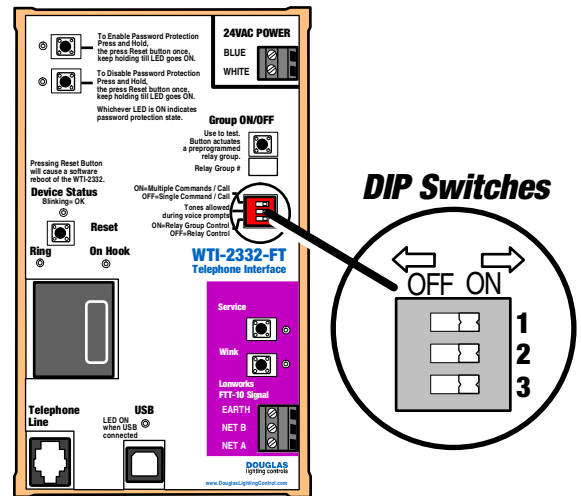
Connect the LonWorks data signal of the WTI-2332-FT to the LonWorks input terminals of an MC-6210N-GTW Card, which connects to the MC-6000 data signal. The MC-6210N-GTW Card must have its own address with respect to the MC-6000 System.



DIP SWITCHES

There are three DIP switches located at the center right of the WTI-2332-FT unit, as shown. Each switch can be set to the ON or OFF position, with factory default being all 3 switches ON. Switch settings can be changed at any time, although the unit may have to be restarted before changes take effect.

Switch	Settings
1	<p>ON: Single command mode: one command when telephone connected to WTI-2332-FT, then connection terminated.</p> <p>OFF: Multiple command mode: unlimited number of commands when telephone connected to WTI-2332-FT.</p>
2	<p>ON: A command can be started on the keypad before the voice prompt ends.</p> <p>OFF: A command cannot be started on the keypad until after the voice prompt ends.</p>
3	<p>ON: Group Menu is default Menu. This is the Menu you generally would use with a LonWorks network.</p> <p>OFF: Individual Relay Menu is default Menu. This is the Menu you generally would use with a MC-6000 network.</p> <p>NOTE: Either menu can be used with both LonWorks and MC-6000 networks.</p>



EMERGENCY PASSWORD

if the system will not accept your password when you dial in to the WTI-2332-FT -for instance if the password was changed without your knowledge- and you are unable to set the unit to no password, you can use the emergency password to connect to the WTI-2332-FT.

Emergency Password: 00735

After you enter the WTI-2332-FT with the emergency password, it is recommended that you create a new, unique password for the unit.

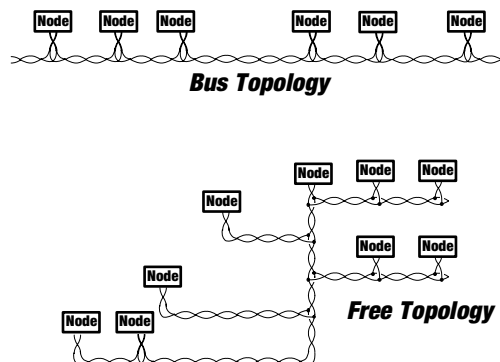
LONWORKS DATA SIGNAL LINE LENGTHS

The WTI-2332-FT connects to the network via a FTT-10 Data Signal.

The topology, or the layout of the network, can be either of two basic types:

- **Bus Topology Network**, where all devices are connected to one central data line called the *bus*. Essentially, panels in a bus topology network are connected in series.
- **Free Topology Network**, where devices are connected to data line segments which can be joined in any manner. Essentially, devices in a free topology network are connected at random.

The lengths of the data signal line segment to the WTI-2332-FT must be included in the calculation for the maximum allowable line lengths for the network. Refer to the following table:



FTT-10 Data Signal Type	Maximum length (total network)		Maximum length (device-to-device)		Maximum length (stub length)		Maximum number of devices	
	Bus Topology	Free Topology	Bus Topology	Free Topology	Bus Topology	Free Topology	Bus Topology	Free Topology
#16 AWG, twisted pair, no shield, Belden 85102	8500 ft (2700m)	1600 ft (500m)	N/A	1600 ft (500m)	10 ft (3m)	N/A	64	64
#16 AWG, twisted pair, no shield, Belden 8471	8500 ft (2700m)	1250 ft (400m)	N/A	1250 ft (400m)	10 ft (3m)	N/A	64	64
Level IV, 22AWG	4400 ft (1400m)	1250 ft (400m)	N/A	1250 ft (400m)	10 ft (3m)	N/A	64	64
Category 5 Cable Standard: TIA 568A	2800 ft (900m)	1400 ft (450m)	N/A	1400 ft (450m)	10 ft (3m)	N/A	64	64

LONWORKS NETWORK DATA FOR THE WTI-2332-FT

This information is for System Integrators who are integrating the WTI-2332-FT into a LonWorks system.

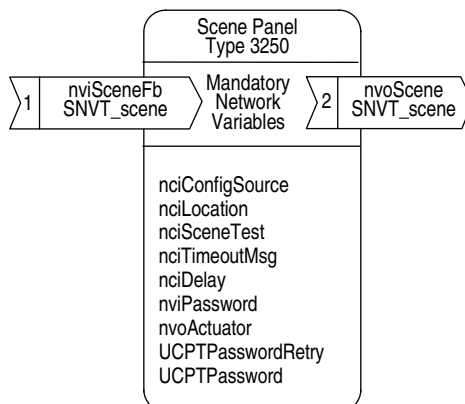
Functional Profiles

- Node Object Type: 0
- Scene Panel Type: 3250

Network Variables

- *nvoScene* for group activation (via external LPC)
- *nviSceneFb* for group status feedback

LonMark® Profiles



General Guidelines:

- Make sure that 24V power exists in the panels (always measure between 22VAC and 30VAC);
- Make sure that the data signal is securely connected to the proper terminal(s) of the WTI-2332-FT;
- Make sure the modem is securely connected to the WTI-2332-FT;
- Make sure all relay groups are programmed correctly;
- Make sure to use the *Group* Menu for a LonWorks network and the *Individual Relay* Menu for a MC-6000 network.

Problem Encountered	Possible Cause(s)	Corrective Action
No Power to Unit (Power Indicator LED off)	Improper input voltage (must be between 22VAC and 30VAC).	- check connections. - check power source.
	External AC current leaking into circuit.	- check wiring for shorts or grounding.
Password not Accepted	Password previously changed.	- set to default no password, then set new password. - use emergency password, then set new password.
Output Relay Groups, or Relays, not responding properly	Improper input voltage (must be between 22VAC and 30VAC).	- check connections. - check power source.
	DIP switch not set correctly.	- check DIP switch settings: #3 should be set to ON for relay groups or OFF for individual relays.
	Wrong Menu (relay groups or individual relays) used.	- change default Menu.
	Wrong group or relay number used.	- check schedules for correct group or relay numbers.
	Bad telephone connection.	- check all connections to telephone and modem. - check voltage to modem.
Service LED flashing once every second	WTI-2332-FT is not configured into network.	- restart panel, and Network Manager device will reconfigure network to include WTI-2332-FT.
	WTI-2332-FT unit is defective.	- replace WTI-2332-FT.

WTI-2332-FT Troubleshooting Guide

Notes

Telephone Number for dialing into WTI-2332-FT

DOUGLAS lighting controls

www.DouglasLightingControls.com
4455 Juneau Street • Burnaby, B.C. • CANADA
phone: (604) 873-2797 • fax: (604) 873-6939

WARRANTY

DOUGLAS products are warranted for one year from the date of purchase by the consumer against defects due to materials and the company's workmanship only. The sole obligation hereunder shall be to repair, or at the company's option to replace, products as aforesaid, provided same are returned, upon authorization, 'Transportation Prepaid' to the company's Burnaby, CANADA office within the said period. Defects or failures due to improper or careless installation, storage or handling, or usage other than rated conditions, are specifically excluded from this warranty. No liability is accepted for return transportation charges following repair or replacement as aforesaid or for reinstallation costs. No other liability of any nature or kind, whether arising out of or from the use of the product, whether or not defective, is assumed.

DOUGLAS lighting controls reserves the right to cancel or change items shown in this publication without notice.